



TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2020-01-30-83 Date: 02-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 30-10-19
Type of Mix : WMM (Wet Mix Macadam)
Date of test : 30-10-19
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2259	2574	23.4	76.6	60-80
11.2	2179	4753	43.2	56.8	40-60
4.75	2251	7004	63.7	36.3	25-40
2.36	1621	8625	78.4	21.6	15-30
0.6	623	9248	84.1	15.9	8-22
0.075	1338	10586	96.2	3.8	0-5

Note:-

The results pertain to the samples received and tested.
All information Furnished by Customer/ Representative
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2020.11.02

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Certificate No.: TC-5548

TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2020-01-30-83 Date: 02-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 30-10-19
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test : 30-10-19

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	$(B/A)*100$	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Percentage	24.6	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2020-01-30-83 Date: 02-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division,
BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding
Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra,
Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 30-10-19
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test : 30-10-19

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	25.3%	

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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2020-01-30-83 Date: 18-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 15-11-19
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 15-11-19
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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TEST REPORT OF AGGREGATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2020-01-30-83 Date: 18-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 15-11-19
Type of Mix : BC(Bitumenous Concrete)
Date of test : 15-11-19

Type of Binder : 60/70
% of Binder Used : 5.0%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.0 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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Certificate No.: TC-5548

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2020-01-30-83 Date: 18-11-19
 Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
 Address : Byatarayanapura Sub Division, BBMP, Bangalore.
 Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area
 Byatarayanapura Sub Division.
 Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
 Customer Reference : BBMP/EE/BTP/WO/123/2019-20
 Source of Sample : Sample supplied by Agency
 Sample Condition : Satisfactory
 Date of Receipt : 15-11-19
 Type of Mix : BC (Bituminous Concrete)
 Date of test : 15-11-19

Table 500-16 : Physical Requirements for Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

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 R KARTHIK RECHAN
 Authorized Signatory
 Quality Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2020-01-30-83 Date: 18-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Hot Mix Plant, Bangalore
Sample Condition : Satisfactory
Date of Receipt : 15-11-19
Type of Mix : BC (Bituminous Concrete)
Date of test : 15-11-19

The results of the tests conducted on the Bituminous Concrete mix sample are as follow				
Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	-

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Certificate No.: TC-5548

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2020-01-30-83 Date: 23-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area
Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Date of Receipt : 21-11-19
Type of Mix : BC (Bituminous Concrete)
Date of test : 21-11-19

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	501
2	Weight of the sample After extraction	B	477	476
3	Bitumen percentage	$\frac{A-B}{A} \times 100$ A	4.60	4.99
4	Average percentage	%	4.8	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Date: 23-11-19

Lab ID : CP-RW-2020-01-30-83

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 477					
IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.8	86.2	70-88
4.75	112	178	37.3	62.7	53-71
2.36	88	266	55.8	44.2	42-58
1.18	29	295	61.8	38.2	34-48
0.6	11	306	64.2	35.8	26-38
0.3	46	352	73.8	26.2	18-28
0.15	45	397	83.2	16.8	12-20
0.075	55	452	94.8	5.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 476					
IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.4	62.6	53-71
2.36	88	266	55.9	44.1	42-58
1.18	29	295	62.0	38.0	34-48
0.6	11	306	64.3	35.7	26-38
0.3	46	352	73.9	26.1	18-28
0.15	45	397	83.4	16.6	12-20
0.075	55	452	95.0	5.0	4-10

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TEST REPORT ON BITUMEN

Lab ID : CP-RW-2020-01-30-83 Date: 11-11-19
Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address : Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name : Pot Hole Filling to Roads in Ward No.06 Thanisandra Surrounding Area Byatarayanapura Sub Division.
Agency : Sri. K.Shankarreddy #48/2, Kaverinagara, Kaval Bairasandra, Bangalore-560032
Customer's Reference : BBMP/EE/BTP/WO/123/2019-20
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 09-11-19
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test : 09-11-19

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C, in 1/10th mm	64	60 to 70
2	Softening Point, °C	51.2	Min. 40°C
3	Ductility, cm	98	Min. 75cm
4	Flash point, °C	246	Min. 220°C
	Fire point, °C	272	

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29.11.19

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